CLAIMS

1. A high-strength aluminum alloy extruded product exhibiting excellent corrosion resistance, comprising an aluminum alloy which comprises, in mass%, 0.6 to 1.2% of Si, 0.8 to 1.3% of Mg, and 1.3 to 2.1% of Cu while satisfying the following conditional expressions (1), (2), (3), and (4),

$$3\% \leq Si\% + Mg\% + Cu\% \leq 4\% \quad (1)$$

$$Mg\% \leq 1.7 \times Si\% \quad (2)$$

$$Mg\% + Si\% \leq 2.7\% \quad (3)$$

$$Cu\%/2 \leq Mg\% \leq (Cu\%/2) + 0.6\% \quad (4)$$

and further comprises 0.04 to 0.35% of Cr and 0.05 % or less of Mn as an impurity, with the balance being aluminum and unavoidable impurities, the aluminum alloy extruded product having a recrystallized structure with a grain size (average grain size; hereinafter the same) of 500 μm or less.

2. The high-strength aluminum alloy extruded product exhibiting excellent corrosion resistance, according to claim 1, wherein the aluminum alloy further comprises at least one of 0.03 to 0.2% of Zr, 0.03 to 0.2% of V, and 0.03 to 2.0% of Zn.

3. A method of manufacturing a high-strength aluminum alloy extruded product exhibiting excellent corrosion resistance, the method comprising: extruding a billet of the aluminum alloy according to claim 1 or 2 into a solid product by using a solid die, in which a bearing length (L) is 0.5 mm or more and the bearing length (L) and a thickness (T) of the solid product to be extruded have a relationship expressed as "$L \leq 5T$", to obtain a solid extruded product of which a cross-sectional structure has a

recrystallization texture with a grain size of 500 μm or less.

4. The method of manufacturing a high-strength aluminum alloy extruded product exhibiting excellent corrosion resistance according to claim 3, wherein a flow guide is provided at a front of the solid die, an inner circumferential surface of a guide hole in the flow guide being apart from an outer circumferential surface of an orifice which is continuous with the bearing of the solid die at a distance of 5 mm or more, and the flow guide having a thickness 5 to 25% of a diameter of the billet.

5. A method of manufacturing a high-strength aluminum alloy extruded product exhibiting excellent corrosion resistance, the method comprising: extruding a billet of the aluminum alloy according to claim 1 or 2 into a hollow product by using a porthole die or a bridge die while setting a ratio of a flow speed of the aluminum alloy in a joining section to a flow speed of the aluminum alloy in a non-joining section in a chamber, where the billet reunites after entering a port section of the die in divided flows and subsequently encircling a mandrel, at 1.5 or less, to obtain a hollow extruded product of which a cross-sectional structure has a recrystallization texture with a grain size of 500 μm or less.

6. The method of manufacturing a high-strength aluminum alloy extruded product exhibiting excellent corrosion resistance according to any of claims 3 to 5, the method comprising: homogenizing the billet of the aluminum alloy at a temperature equal to or higher than 500°C and lower than a melting point of the aluminum alloy; and heating the homogenized billet to a temperature equal to or higher than 470°C and lower than the melting point of the aluminum alloy and extruding the billet.

7. The method of manufacturing a high-strength aluminum alloy extruded

product exhibiting excellent corrosion resistance according to any of claims 3 to 6, the method comprising: a quenching step of maintaining a surface temperature of the extruded product immediately after extrusion at 450°C or higher and then cooling the extruded product to 100°C or lower at a cooling rate of 10°C/sec or more, or subjecting the extruded product to a solution heat treatment at a temperature of 480 to 580°C at a temperature rise rate of 5°C/sec or more and then a quenching step of cooling the extruded product to 100°C or lower at a cooling rate of 10°C/sec or more; and a tempering step of heating the extruded product at 170 to 200°C for 2 to 24 hours.